CLEAN COPY OF CLAIMS PENDING AFTER AMENDMENT

1. A method for treating a bone defect, comprising:

providing a strongly resorbable, synthetic poorly crystalline apatitic (PCA) calcium phosphate, the poorly crystalline apatitic calcium phosphate having a calcium to phosphate (Ca/P) molar ratio in the range of about 1.2 to 1.68 and further having the X-ray diffraction pattern of naturally occurring bone, as shown in Figure 3c, and

implanting the poorly crystalline apatitic calcium phosphate at an implant site requiring bone growth, whereby the implanted poorly crystalline apatitic calcium phosphate is resorbed with a resorption rate characterized in that, when placed in a rat intramuscular site, at least 1 g of the poorly crystalline apatitic calcium phosphate is at least 80% resorbed within one year, and bone is formed at the implant site.

3. The method of claim 1, wherein the poorly crystalline apatitic calcium phosphate is implanted in the form selected from the group consisting of paste, putty and preshaped object.

7. The method of claim 1, wherein the poorly crystalline apatitic calcium phosphate has an X-ray diffraction pattern comprising broad peaks at 2θ values of 26°, 28.5°, 32°, and 33°.

9. The method of claim 1, wherein the poorly crystalline apatitic calcium phosphate is characterized in that, when placed in a rat intramuscular site, at least 1 g of the poorly crystalline apatitic calcium phosphate is at least 80% resorbed within one month.

10. The method of claim 1, wherein the implant site comprises a tooth socket.

11. The method of claim 1, wherein the implant site comprises a non-union bone.

12. The method of claim 1, wherein the implant site comprises a bone prosthesis.

13. The method of claim 1, wherein the implant site comprises an osteoporotic bone.

14. The method of claim 1, wherein the implant site comprises an intervertebral space.

15. The method of claim 1, wherein the implant site comprises an alveolar ridge.

16. The method of claim 1, wherein the implant site comprises a bone fracture.

25. A method for embedding a prosthetic device, comprising:

introducing a prosthesis at an implant site;

applying a paste to a surface of the prosthesis, the paste comprising an amorphous calcium phosphate, an acidic second calcium phosphate, and a physiologically acceptable fluid in an amount sufficient to provide a paste of formable or injectable consistency, whereby the paste is converted at the implant site to a hardened calcium phosphate product in an endothermic process; and

allowing the hardened calcium phosphate to be resorbed and replaced thereby with bone.